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ABSTRACT

This paper presents a general model for restructuring teacher education programs in order that they might more adequately fulfill what the planners consider to be the essential goal of teacher education--i.e., the production of "teachers who are self-actualizing, integrated persons, fully capable of functioning within the evolving institution of the elementary school." The model (a sequential ordering of major blocks of study based on the principles and procedures of systems analysis) is designed "to be capable of interfacing with the present system, particularly with the realities of higher educational institutions; and to be capable of simultaneously responding and looking forward to a changing society, while not losing track of who the teacher is in the process." Distinctive characteristics of the two-part model are its conception of and provision for a teacher education program which embraces not only the 4-year basic preservice training period, but also the first several years of inservice experience and includes preparation for a wider variety of teacher-related roles and functions than do most existing programs (for example, "system functions in man-machine systems," "community, non-school roles," "helper roles for new and younger teachers," etc.). Graphic materials included are "Teacher Education Program Output Analysis" and "Teacher Education Program Component Flow Chart." (ES)

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A Systems Approach to the Organization of Teacher Training Experiences

by

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February 1969

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"A Systems Approach to the Organization of Teacher Training Experiences"

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I. The Educational System of Concern

The Impact of Change

Any attempt to develop new programs or models for training teachers must take into account the environment in which formal education takes place today.

Perhaps today's environment may best be characterized in one word: "Change". The upheavals of the present day, in every area of life--science, politics, economics, leisure, religion, etc.--are affecting both traditional structures and the relationships of men to each other.

Criticisms of education, particularly of the public schools system in America, are in large part a response to this changing situation in society. The challenge that is presented to education today is not a choice between changing or not changing, but rather whether education will indeed lead that change or merely accommodate it.

The changes in the institution of public education in America will be generated by the following:

- the movement for more effective government;
- better use of scarce resources;
- changes in the nature of the transmission of information;
- reorganization of job-related skills and their procurement;
- trends toward centralization brought on by improvement in transportation and communication;

- the development of new teacher, teacher-related, and support roles;
- the eventual increased use of biochemical learning and control;
- an extension of leisure time and the concept of lifetime education;
- and the generally diminishing distinctions between traditionally separate types of educational institutions--elementary and secondary school, college and university, on-the-job and in-the-home training.

Perhaps the single, most important change factor influencing education today is the rapid pace of technological development. Several social critics, in fact, feel that an imbalance has been created because one narrow channel of man's endeavors--technology--has outdistanced all others, leaving the social, political, economic, and educational systems trailing somewhere behind. At the same time, these technological advances are providing the leisure time necessary for reflection on the inadequacies of the social, political, economic, and educational systems.

Evolving technology has provided education with a whole new set of teaching-learning tools, new media and communications devices, teaching machines and other aids. Further, technology is challenging the very nature of the learning process, including questions of what is to be taught and what it is that people need to know. There is little agreement about content and proportions of curriculum. This has led several educational critics to suggest that required content (including facts and concepts) and processes (including development of concepts and organization of problems) cannot and should not be predicted. More generally, a trend appears to be developing which places the emphasis in education on developing bright students who are interested in learning and capable of learning whatever is required of them.

Similarly, the emphasis is shifting from the belief in a set of fixed educational techniques which will "insure" learning, to the understanding of individual "learning styles" (verbal, non-verbal, literate, etc.) and the

belief that the most important learning is that which is based on the individual's own experiences.

The implication of this direction for teacher training is that if children who are flexible learners are to be developed, their teachers must also be flexible learners adaptable to change. Teacher education, therefore, should be tailored as nearly as possible to the individual's own learning styles and life experiences.

The teacher receiving training today will work in a world marked by change. Indeed, the whole nature of the educational process may change. The functions assigned by society to the schools may either broaden, to include additional social welfare needs, or be narrowed to concentrate on intellectual development and training in basic skills. Teacher education programs, therefore, must be designed to prepare an individual who can adapt to these prospective changes, who will be flexible in approaching his task, and who can promote change and development within the institution.

The Restrictions of Reality

Educational models must be developed within the context of forces controlling the schools and influencing the direction of teacher education. At the present time, teacher preparation is primarily dictated by a state's teacher certification requirements, by the policies of state and local school boards, by the school administrators who select teacher candidates and provide the supplementary experience programs for new teachers, by pressure groups who actively promote a specific cause, and by the profession itself, a rather self-conscious, loosely structured, highly powerful force seeking the general improvement and upgrading of the teacher's position in society.

Teacher education is provided by four kinds of institutions sensitive to the above pressures: the liberal arts college, the teacher's college, the

university (undergraduate), and the professional college of education within the university. Each of these institutions brings to bear a varying set of stresses and strains stemming from its philosophical approach to knowledge and learning. Generally, the liberal arts college will espouse a teacher preparation program stressing the "academic," and the teacher's college will tend toward the "experiential" or "methods of teaching" approach.

Recent research has helped to clarify the teaching task, the role(s) of the teacher in the classroom, the nature of knowledge and the learning process, and the functions involved in the learning process. Evidence indicates that this research has not been translated into viable programs of teacher preparation. The status quo pressures exerted by the forces indicated above account in part for this failure of teacher education to keep pace, but insufficient support by the public as well as by the profession has hindered the development of new programs. Yet, as education continues to rise in cost, and as the public continues to demand a "better" education for an increasing percentage of the population, radical improvements will be required in the preparation of professional personnel.

In an attempt to evolve teacher training models responsive to a changing society and a changing educational situation, the planner cannot merely describe the changes taking place and thereby project requirements for the future. The program must also take into account the realities--both the potentialities and the limitations--from which it must start.

Initial environmental restrictions include:

1. Teacher certification requirements which vary from state to state, and which establish the outer limits for curricular experimentation.

2. Local and state school boards which establish personnel policies and which are, of necessity, responsive to the political atmosphere of their respective locales.

3. Individual school administrations, which must manage many relationships both within and outside of the school itself, as well as managing physical facilities and their functioning.

4. Parents' associations, which may or may not demand an active role in local school systems.

5. The profession itself.

In addition, both the trainees and the trainers are themselves products of existing educational systems and have been shaped by that experience, for better or worse. Teacher training programs, then, should plan both for orienting teachers to the above realities and for interfacing with the present system.

The Teacher

A model teacher training program, in addition to being responsive to changes in society and education, must also recognize the individual who will actually do the teaching. On the whole, those who enter teacher training programs are young men and women recently out of high school, between the ages of 18 and 22. Their life experiences are fairly limited, and they may have had only a minimal opportunity to explore and develop any strong outside interests.

> "When the student begins his professional work, his concepts tend to be limited to the classroom aspects of teaching; that is, he sees a teacher in a classroom with a group of students. He is likely to consider teaching as telling students about his subject. His immediate concerns are not

> likely to be broad enough to include within his scheme the teacher as a member of the community or member of a profession. At this point in his development there is also some question about the prospective teacher's deep concern about the school as a social institution or for the child as a learner. And further, the teacher education student may have a negative orientation to professional preparation since he has been subjected to the current conflicts about teacher education.
>
> If the conditions outlined above are correct, or even only partially correct, and the idea of reorganization and extension of concepts is accepted, the first effort in professional education should begin with the concepts that are directly related to the classroom functions of the teacher. As the scheme of the student is extended, concepts now considered of less immediate concern may be added in orderly sequence."[1]

This indicates that a teacher training program should be formulated in the same way that a program for the education of children is developed. A teacher training program should be based on the prospective teacher's present experiences, provide ample opportunity for developing his own natural interests, and be built on experiences which will develop an eagerness to learn and face change.

Teachers do not learn how to teach so much by teaching as they do by being subjected to different types of learning themselves and being stimulated to reflect on these experiences. They develop in themselves a sense of what best produces learning in others.

Current Literature

Current literature and research findings on the theory, practice, and future of American education abound in descriptions of what is wrong with schools.

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[1] Pre-Service Professional Component of a Program of Teacher Education, Copyright 1964, AACTE.

Much of the attack focuses on the training of teachers. Some authors suggest solutions to the problem, but the majority offer plans for improvement which fall into one of two categories: (1) piecemeal and fragmentary studies of small segments of the educational process, or (2) studies of the output of the educational system. In-depth research, on the one hand, has addressed itself largely to small areas of the total program, such as "the cognitive processes in early childhood learning". On the other hand, however, studies attempting to deal with a sizeable portion of the educational effort tend to be "broad-brush" in approach. They are based less on a painstaking analysis of the current situation than on an urgency for change towards a prescribed end product. A disproportionate amount of effort has been directed to projecting toward 1980 and beyond, while insufficient attention has been paid to analyzing existing factors as a basis for the future.

Both kinds of study are enormously important for educational planning, but neither in itself is capable of providing the tools required for developing programmatic models for teacher training.

The teacher training model must be one which is (1) capable of interfacing with the present system, and (2) capable of simultaneously responding and looking forward to a changing society--while not losing track of who the teacher is in the process. The key to developing such a model is to provide the optimum set of known learning exposures and to measure the effectiveness of these exposures.

II. Components of a Teacher Education Model

A teacher education model can be evolved in the context of the teacher's changing role and the future of society as described in the first section of this paper. Its development should make use of recent planning techniques not usually applied to educational problems. These methods are conveniently collected under the heading "systems procedures." This approach requires that the planning begin by describing the present situation, showing required changes and the problems encountered in bringing them about, by defining the problem solving processes and required resources, and by developing and operating a continuous program of evaluation and feedback.

The development of an adequate model, using systems procedures, requires that planners first address these questions:

- What are the functions of the elementary teacher in the context of the school situation?

  Adequate models of teacher education must be based on clear-cut analyses of significant "teacher" functions. Many of these functions evolve from the relationship between knowledge and students; others involve the teacher's ability to understand and foster genetic growth; still others are concerned with the selection and development of materials, the organization of the learning environment, the planning of learning experiences, and the evaluation of student progress. These functions exist in a context requiring the performance of many roles--in relation to the principal, other teachers, the community (especially parents), and as a leader and member of an "instructional team."

  An analysis of the classroom teacher's activities will: indicate these significant functions, rank the functions according to their importance and requisite training and experience, suggest those requiring a

"teacher" and those which can best be performed by less highly trained personnel, and form a positive basis for developing a teacher education program.

- What knowledge (ideas, attitudes, skills, and facts) is required of the elementary teacher in order to perform the necessary functions?

The traditional debate concerning teacher preparation has concentrated on this question as distinct from (and usually unrelated to) the preceding one, but little information has been gathered that specifically states what a teacher must "know" in order to teach. Is there a unique professional knowledge? This question will remain unproductive until functional processes are defined and certain knowledge and skills are related to them.

This statement should not suggest that teaching is reducible to a number of relatively uncomplicated skills developed through the acquisition of static information. Teaching is a highly complex activity, as much an art as a science. Nevertheless just recently, research has indicated some kinds of things effective teachers know and some kinds of skills and information that improve teacher performance. An effective model for teacher education will view knowledge in this manner--as related to the performance of defined tasks. An additional benefit is gained through the heightened motivation achieved when prospective teachers are able to relate their knowledge activities to their career plans. This viewpoint also provides a basis for individual "discovery" and conceptualization on the part of the prospective teacher.

- What experiences (observations, interactions, applications) are required for the prospective teacher to acquire the necessary background to understand the real world of teaching?

The prospective teacher has a considerably limited background from which to view himself as a teacher. Experiences, therefore, must be

designed which promote personal discovery and self-insight. Later on in this individual program, the nature of these activities will include the use and application of acquired knowledge to teaching situations.

How can this analysis of functions, and concomitant knowledge and experience, be stated in terms of program goals?

Teaching is a complex function, and the goals for the teacher education program cannot be stated simply in terms of the acquisition of the specific skills and knowledge required in the performance of separate tasks. In addition, much of the teacher's important education occurs during the first years of teaching, after his formal period of preparation is complete. Program goals, therefore, should be stated for both the teacher education program and for the in-service component which will accompany the teacher's initial experience.

Goals for the teacher education program should be stated in terms of the nature of the person required for the job. In part, these goals will reflect the functions of the task and the many roles the teacher will be called upon to play. Basic to these considerations, however, will be the person behind these tasks and roles. The goal of teacher education is the development of a self-actualizing, integrated person, fully capable of functioning within the evolving institution of the elementary school. Beginning with this statement, Figure 1 indicates the major objectives that the teacher education program is to accomplish at the end of the initial training period and at the end of a five-year period of experience and in-service education.

For each of these objectives, it will be necessary to determine what knowledge, skills, attitudes, experiences, and self-insights are required to achieve a functional level of proficiency. Answers to these questions form the basis for the design of curricular experiences.

TEACHER EDUCATION PROGRAM OUTPUT ANALYSIS

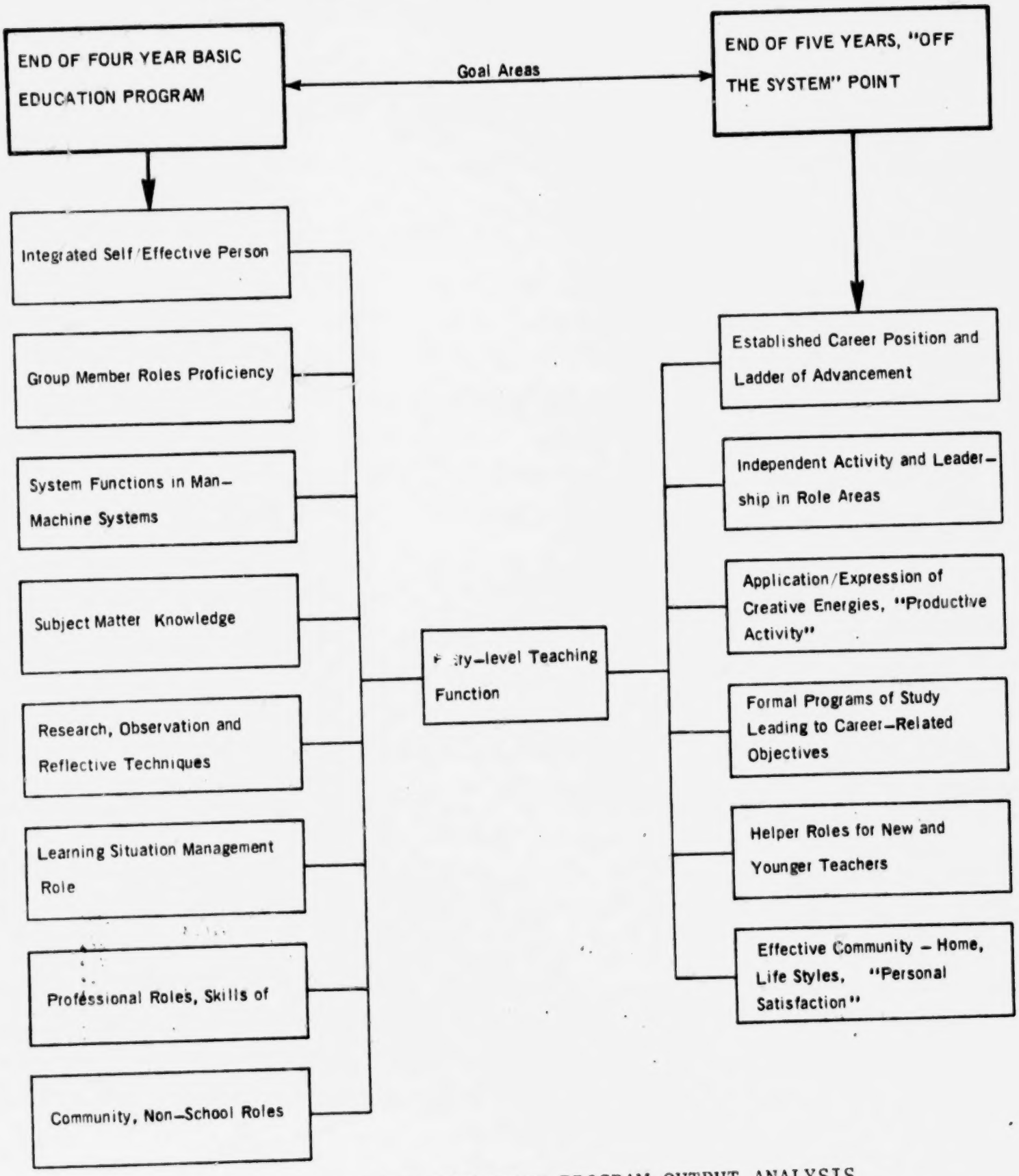
END OF FOUR YEAR BASIC EDUCATION PROGRAM
Goal Areas
END OF FIVE YEARS, "OFF THE SYSTEM" POINT
Integrated Self/Effective Person
Group Member Roles Proficiency
System Functions in Man–Machine Systems
Subject Matter Knowledge
Research, Observation and Reflective Techniques
Learning Situation Management Role
Professional Roles, Skills of
Community, Non–School Roles
ty–level Teaching Function
Established Career Position and Ladder of Advancement
Independent Activity and Leader–ship in Role Areas
Application/Expression of Creative Energies, "Productive Activity"
Formal Programs of Study Leading to Career–Related Objectives
Helper Roles for New and Younger Teachers
Effective Community – Home, Life Styles, "Personal Satisfaction"

Figure 1. TEACHER EDUCATION PROGRAM OUTPUT ANALYSIS

The system of goals in Figure 1 implies a set of postulates for the adequate preparation of teachers. It is therefore appropriate to discuss each of the areas briefly:

Integrated Self-Effective Person

It is assumed that self-integration is basic to successful work with children. The teacher should be provided the opportunity to examine his motivations carefully, his needs and drives, and his relations to others and to himself. The concepts of Carl Rogers, Erich Fromm, Rollo May, and others explain what is intended in this area. The effective teacher is able to bring his total self to the teaching situation, but he is also able to see that self as greater than the teacher role. The deliberate development of such a view of self appears a serious omission of present teacher preparation programs.

Group Member Roles Proficiency

Teaching is too frequently viewed as a unilateral function in which the teacher is seen as superior and the student inferior in authority, responsibility, and initiative. The alternative roles available for relating to students need to be further explored, but research in this area is far ahead of developmental programs. Teachers are frequently unable to select alternative roles because they lack the knowledge that alternatives are actually available to them. This handicap seriously undermines the teacher's ability to interact with many types of studen[illegible]

Role may be stated in another way. To [illegible] increasing degree, the teacher is becoming a member of a tea[illegible] highly sophisticated group of experts involved in the preparat[illegible] delivery, and evaluation of

educational experiences. Team teaching is now quite common, but the new technologies and the force of such extra-educational agencies as the "educational industries" and the learning research and development centers will require increasing flexibility.

System Functions in Man-Machine Systems

A "man-machine" system implies that specific functions are defined and then assigned to either a man or a machine or a combination of both. If the system is effective, both the man and the machine (actually many of both) are functioning according to the specifications predetermined for the system. To many educators, this concept appears to dehumanize teaching, yet in fact, the use of modern technologies may free the teacher from the limitations of his own knowledge, from the necessity for constant low-level, repetitive activity, and from much of the day-to-day burden of routine clerical and administrative duties. In turn, man-machine systems offer the potential for increasing individualized instruction, for permitting the teacher time to work with groups and individuals on a personal basis, and for enriching the learning environment of every student.

Man-machine systems are finding an important role as educational planning techniques, and they require that prospective teachers develop the requisite attitudes, knowledge, and skills to deal with the vast array of machines to be found in the modern classroom, and with themselves as teachers. The development of integrated educational systems appears close at hand. The implications of these developments, however, have not been adequately discussed nor are they adequately provided for in the preparation of teachers.

Subject Matter-Knowledge

The prospective elementary teacher should be well grounded and proficient in those areas of knowledge necessary to the task of teaching. Since there is such broad disagreement on just what the elementary teacher should know, it is only suggested that he be thoroughly grounded in basic communications skills, knowledge of the culture, history, and traditions of the country, knowledge of basic scientific principles, and that he possess a high level of "general information."

The significant issue in subject matter-knowledge is not the "what"; it is the "how." Teachers should be flexible in their knowledge, capable of broad application and discovery, creative in their problem analysis, and receptive to new information and conceptualizations. The goals of the subject matter-knowledge programs, therefore, should be stated in terms of the how of knowledge.

Research, Observation, and Reflective Techniques

Each teacher should be capable of using basic statistics, of understanding the various approaches to research (scientific, historical, quantitative), of accepting and applying research findings, of understanding and interpreting test results, and of designing research projects to pinpoint needed changes and improvements within the classroom. The goals of this block should be stated in terms of the application of research to the ongoing teaching process.

Indeed, the development of computer-based instructional management systems can provide the teacher with too much information, unless he is capable of developing a context for effectively determining

his information needs. Perhaps the leading contribution of systems procedures to education is the concept of "feedback;" a continual supply of diagnostic and corrective information to the system as it operates. Teachers will require training in the production, control and use of this information. Of more significance than the increased flow of information however, will be developing research-oriented attitudes concerning teaching. The teacher is asked to be introspective in terms of his function, to adjust his behavior in terms of information about students and their environments, and to use the "research-evaluation" feedback process to improve the teaching-learning process.

Learning Situation Management Functions

The teacher is a manager in the sense that he oversees a process. As such, the teacher must possess the basic management skills--planning, organization, operation, development, staffing, supply, production, and evaluation. This management task will gradually assume the central role of teaching as more and more technical assistance becomes available, yet classroom tasks are not generally approached according to the principles of effective management. Much time could be saved through the development of the attitudes and values of modern management in today's teacher. The goals in this area should be stated in terms of the functions related to the operation and control of all teacher tasks (learning and other activities).

Professional Roles

The teacher as a professional finds himself called upon to function according to generally accepted patterns of behavior, both within and outside the school situation. His professional responsibilities

require his acceptance of roles and tasks unrelated to the direct work of the classroom. The prospective teacher should have adequate opportunity to examine the meaning and the implications of the profession of teaching, the nature of the profession and its demands, the organizations and associations pretending to represent the profession, and the expectations placed upon him as a potential professional. This area appears particularly significant as it relates to the acceptance of the other roles herein defined and to the individual's acceptance of himself within the context of a "teacher."

Community, Non-School Roles

The teacher performs many roles as a family member and as a member of the community. The skills and attitudes required to effectively fulfill these roles are frequently radically different from those required of him as a teacher. At the same time, the school and the community now appear to be communicating more closely than was previously the case, at least as measured by the cooperation among other social service agencies, planning organizations, and citizens groups with the schools. The goals of the non-school role area should be stated in terms viewing the prospective teacher as a total person and as a respected member of the community.

- How can a program of teacher preparation be organized to achieve these goals?

A basic need within the field of elementary education at this time is an analysis of the form and organization of knowledge and experience requisite for the prospective teacher. This effort will require broad research and analysis, but several important guidelines can be developed from the form of the required approach. These guidelines

tend to suggest the quality of the program rather than the nature of its content.

- All program experiences should come from statements of goals and should be related to these goals.

- All program experiences should provide a thoroughness and understanding of the basic concepts of the subject under consideration, including the ability to discover and to apply this knowledge.

- All program experiences should be designed for effective presentation, including the maximum of student activity, utilizing the modes known or rationally assumed to be most effective for presentation.

- All program experiences should be designed for maximum efficiency in presentation, based upon preservation of the critical resource, which, in this case, is assumed to be student time.

- All program experiences should utilize measures of cost effectiveness in development and presentation, insofar as cost effectiveness does not require sacrifice of the critical resource, student time.

- All programs should be organized sequentially, insofar as this is possible, to include attention to individual cognitive styles, prior background and experience, and special learning difficulties.

- All programs should be designed to provide a constant system of feedback, first to the student on his progress and standing, second to the teacher on the success of the particular program, and third to the institution on the relation of the particular program to the total program of teacher preparation.

It will be noted that several considerations for program development have been omitted from this list; the most significant being duration, credit, content, and institution. If a program of effective teacher preparation is to be developed, it must begin by first determining what is necessary to achieve the desired goals, perhaps under ideal conditions. After the necessary tasks and learnings have been delineated and organized, they can then be combined into effective units, or blocks, which may resemble in form the traditional organization of a program of higher education. At this juncture, much planning in this area has suffered because of its concern with duration and credit, and the concomitant unwillingness of accreditation agencies to judge substance rather than form. What is being suggested here is that first a design be prepared and then it be related to the institution. If necessary, the institution should change to accommodate the design.

Essential Aspects of the Model Program

The model will be developed to contain within itself a mechanism for self-modification in response to "change" and also to provide data to insure continuing program improvement. This statement implies that certain kinds of information will be required, not only prior to the operation of the program, but continuously throughout the duration of the program. Further, methods will be incorporated within the model for the regular change and adjustment of the program.

Four kinds of information will be required for effective development and continued evaluation of the program.

1. Input Information

Input information will include a close analysis of the prospective student in terms of his ability to successfully meet the requirements of the program intellectually, socially, emotionally, and personally. Close attention will be directed toward the analysis and correction of deficiencies in individuals who appear capable of performing within the program. A careful evaluation of experiences other than formal education will be made, (e.g., Job Corps, para-professional experience, remedial and adult education programs) in order to provide maximum access to the program on the basis of achievement and potential, rather than simply on the completion of a high school program.

2. Background Information

The graduate of the program will work in the elementary classroom of the public school. It is necessary, therefore, that a constant analysis of changes within the school as an institution be an integral part of the planning process, e.g., new equipment, new techniques, new demands on teachers, etc.

3. Process Information

The program will include regular checkpoints so that adjustments can be made in the program and progress of a particular student or group of students. These adjustments will stem from the student's level of achievements, from

changes in the direction or sequential organization of the program, or from the perceived failure of the program to achieve the stated goals (goals may also be adjusted and changed during the course of the program). Effective measures of process will be included in the development of each program element and as parts of the overall program design.

4. Output Information

The implementation of a program of this nature requires a considerable time lag between preparation and the results of training; in fact, a six or seven year delay is not unreasonable. Output measures, therefore, will include attention to the teacher's performance over a considerable period beyond the completion of the initial program. These measurements will include not only relevant indices concerning teacher performance, but attempts will be made to discover the kinds of teacher preparation which have positive effects on students. This type of measurement will mark an important step in future planning for the preparation of teachers.

III. A Basic Program Design Model

The program model began with an analysis of the functions involved in teaching and of the knowledge and experience related to these functions. The output of the analysis was then described in terms of objectives. These objectives, in turn, suggest a basic model for program design. Both the goal areas and the programs suggested through this approach are theoretical approximations used as a focal point for additional study, but the framework presented in this section appears to be an effective outline for an operational model.

The model for teacher education (Figure 2) contains two sections: (1) pre-service and (2) in-service education. The flow chart avoids mention of specific times, credits, or emphases on specific units within the program. It represents only a sequential ordering of the major blocks of study. Specific content and presentation modes will be determined only after a careful analysis of functions and statements of program goals is made.

Several assumptions govern the design of this model, and are explicated to provide the proper perspective for interpretation:

- The model assumes a basic entry level, but this level may be achieved by means other than formal schooling. Entry should be determined by a careful analysis of the individual's potential for success in the program and his potential as a teacher.

- The model assumes that all experiences provided by the program of formal education will be directed toward the goals of developing a fully functioning teacher. In this respect, it is a program of technical training rather than general education, but if the prospective teacher is to achieve excellence and thoroughness through his program,

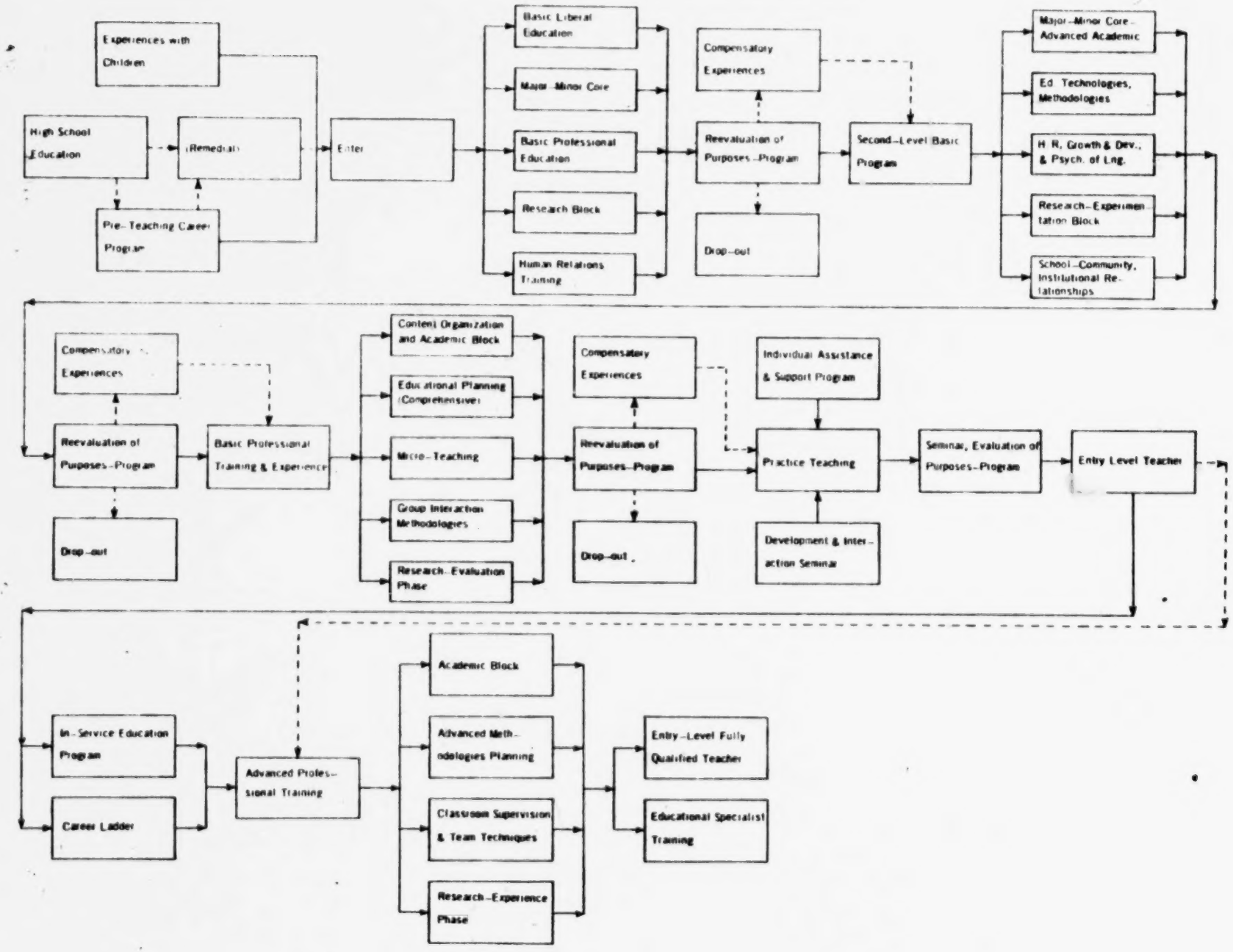

Figure 2. TEACHER EDUCATION PROGRAM COMPONENT FLOW CHART

each segment will require a design which maintains the integrity of the content. Consequently, the process of general education is subsumed in the design process.

- The model provides continual re-evaluation of purposes and program, with a provision for compensatory experiences and review. It is assumed that contact with this program will lead some individuals to decide against either the program or teaching. In fact, throughout the program students will be encouraged to make conscious decisions to continue or to drop out.

- The model assumes that preparation for the teaching experience is the most important aspect of the pre-service training program.

- In-service programs for entry level teachers are to be developed as continuations and logical extensions of the pre-service training, except that the local school district will play a strong role in determining the sequence and format of these programs.

- While it is felt that some teaching experience should precede formal study beyond completion of the pre-service program, the model presents alternatives for advanced study.

The Pre-service Training Model

The pre-service training model is divided into four major divisions of study and experience: (1) basic preparation and background, (2) second-level basic preparation, (3) basic professional training and experience, and (4) practice teaching and related experiences. These divisions represent a general progression from knowledge and experiences, organized in terms of learning goals, toward activities, organized in terms of teaching goals. Within each

division, basic program components for the attainment of these objectives are established, and the components help suggest design questions. A short description follows:

Basic Liberal Education

This component consists of the essentially intellectual pursuits which would be found requisite to a fully functioning elementary school teacher. Content should be organized in terms of the subjects and directed toward development of the teacher as a rational person.

Major-Minor Core (and Advanced Academic)

It is assumed that the teacher should gain some academic specialty in order to experience the discipline of careful study. This component provides for intensive study in one or more areas considered important for elementary teaching, and related to the special interests and abilities of the student.

Basic Professional Education

This component should help the student understand education as a cultural phenomenon and its development as a system of mass public education within the American experience. In many respects, this area resembles some aspects of present teacher preparation programs, but the nature of the experience and its impact on the individual should be carefully considered in the design process.

Research Block

Throughout the program of pre-studies, a major emphasis will be placed on the development of research skills and attitudes. The student will first study descriptive statistics and research methodologies; later computer programming can be added. Techniques for evaluation and their effective

use will be stressed. The student should become comfortable with the use of quantifiable information and with the concept of a continuous feedback system through his work in these areas.

Human Relations Training

Group dynamics and sensitivity training programs should be designed to provide opportunities for self-examination, role and function definition and practice, participative leadership tasks, and introspective evaluation of the experiences encountered throughout the program. The intent of this portion of the program is to help the student become a fully functioning person, sensitive to himself and others.

Educational Technologies-Methodologies

The emphasis in this area will not be simply the available or potential machines and their use in education, but rather the appreciation of technological processes and planning. The concepts of man-machine systems in education will be explored, as will the concomitant philosophical questions of man, technology, and the world of the future. The emphasis will be on planning for school programs, but the student should be able to develop general concepts concerning the uses of science and technology in life.

Human Relations, Growth and Development, and Psychology of Learning

In the previous human relations block, the student was essentially looking at himself; in this area he is studying other individuals--elementary students and their relationships to others. This component includes the various learning psychologies and their relevance to the elementary school. The area forms a basic part of the professional preparation from the standpoint of giving the prospective teacher the basis for understanding his functions and purposes as related to children and learning.

Research-Experimentation Block

Having mastered the basic tools of research, evaluation, and measurement, the prospective teacher will be expected to undertake activities of a research and developmental nature in order to become familiar with the processes involved. These activities should relate to actual school situations and to the kinds of questions appropriate for teacher-level, research and evaluation.

School-Community, Institutional Relationships

The school and the community are developing closer working relationships than has previously been the case in the past American experience. These relationships have improved because of Federal sponsorship in areas traditionally thought of as part of the school, but there is growing evidence that many agencies must now concern themselves with the welfare of the child if the task is to be properly undertaken. In this component, the student will study these "school-community relationships" and then gain first-hand experience by working in a variety of agencies.

Content Organization and Academic Block

Advanced academic study at this level will be concerned with the student's development of concepts within the areas of specialization. The emphasis will be placed on the organization of the knowledge component within the teaching-learning experience. The student will develop conceptualizations, structures of knowledge, and techniques of presentation. At this level, the student is learning to use knowledge as a tool, a teaching resource, and an academic discipline.

Educational Planning (Comprehensive)

Perhaps the most important impact of technology on education has been the recognition that change requires extensive and thorough planning. To meet

these needs, many techniques and systems of planning have been developed. In this component, the student will approach planning as a set of positive attitudes toward decision making and will be concerned with applying useful techniques to classroom-level planning tasks, to the development of long-range and integrated plans for schools, and to the design of sequential curriculum modules.

Micro-Teaching

Micro-teaching signifies a specialized group of techniques which permit the student to observe himself and gain insight into his teaching behavior. In this component, the student will plan, present, and evaluate various segments of the teaching task and related functions. These activities will provide in-depth analysis of teaching behaviors and opportunities for their modification, prior to the student teaching experience.

Group Interaction Methodologies

Designed as a continuation of the human relations and psychology components, the student is now asked to develop and experience the various forms of group control and direction. Basic skills in this block include interaction analyses, role-playing, and teaching strategies.

Practice Teaching

The practice teaching experience should take place in a public school under conditions closely resembling those the prospective teacher will encounter in his first job. Prior to this experience, the student has become familiar with the school, the techniques, and the skills which form the basis of teaching. He also understands the nature of the learner, knowledge, and their interaction. He now applies theory. It is a safe prediction that the practicing teacher will encounter difficulties

during these initial experiences, and two methods of support are included: (1) An Individual Assistance and Support Program provides professional and technical assistance to the practicing teacher through the resources of the cooperating school, the college, and other requisite agencies; and (2) The Development and Interaction Seminar permits an opportunity for review, analysis, critique, and discussion of progress and pitfalls. This phase, and the pre-service program, culminate in an Evaluation Seminar during which the student reviews his program and progress, critiques the institution's program, and judges his own fitness to enter teaching.

In-service Training

The model assumes that a minimum of one year's teaching experience be established as a prerequisite to graduate level training. Practical teaching experience appears to provide insights that cannot be obtained otherwise, and teaching should produce a "student" who will consciously interact with programs of graduate education. Graduate degree programs and course sequences should be organized with the in-service concept in mind.

The model assumes that the appropriate graduate degree for elementary teachers should be a Master of Arts in Elementary Education. The program would be restricted to graduates of the pre-service program and to other elementary teachers who possess qualifications and viewpoints closely resembling those provided by the professional sequence portion of the pre-service program.

This graduate program is aimed at those talented teachers who plan to stay in teaching rather than to move toward administration, guidance, etc. The teacher who advances through this progression, therefore, must look forward

to adequate professional and financial rewards. The support of school systems and communities will be required if the program is to be implemented.

A meaningful degree program in elementary teaching might follow this general outline:

1. Educational Areas
   - Advanced Concepts of Cognitive Development and Learning Psychologies
   - Advanced Concepts of Individual Differences and Measurement
   - Advanced Concepts of Media and Educational Technology
   - Advanced Concepts of Motivation and Classroom Management
2. Academic Area
3. Community Involvement

The model suggests 45 semester credits be required and that each candidate pass a comprehensive examination. The program should be variable to meet the needs and interests of each student. Area (1), however, should probably receive approximately twice the effort devoted to either Area (2) or (3).

Area (1) grows out of and expands into similar areas in the pre-service program. Area (2) must be defined very loosely to give developmental alternatives to the teacher as a function of interests developed, or requirements recognized as a result of the teaching exposure.

Area (3) will involve a somewhat different approach to community involvement. The college, cooperating with the local school districts, will build relationships with community agencies and services related to the functions of the school. Teachers will participate in these activities in ways which offer opportunities to bridge the gap between school and community. These activities would increase the teacher's awareness of the community's total impact

on the child. Concomitant discussion groups will make this a program in active sociology and community development.

Conclusion

This paper presents a design for teacher education which suggests a complete reorganization of the programs presently offered by most colleges and universities. Such a complete rethinking seems required because of the vast changes in knowledge and techniques. An institution undertaking radical innovations, however, faces great difficulties from all the pressures which resist the new and different. For this reason, the model has tried to present innovative ideas in a structural format, adaptable to the realities of higher educational institutions. At the same time, the program reorganization and use of new techniques offer the potential for new efficiencies in the use of resources, along with improved teacher preparation programs. These benefits should provide the impetus for undertaking the effort.

Abstract

Changing conditions of society, including especially the knowledge and technology revolutions, require radical improvements in the preparation of elementary teachers. This paper presents a general model for restructuring a program of teacher education, including pre-service and continuing in-service training. The planning utilizes systems procedures for analyzing teacher needs and organizing program components. The model is adaptable to present institutions of higher education, although the paper concentrates on program ideas, omitting discussions of credits, grades, and other formal aspects of study.